

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Transportable water purification unit comprising a first sub-assembly which is essentially a pumping unit capable of pumping water substantially within the purification unit and a second sub-assembly which is essentially a filtering unit capable of filtering at least biological matter and/or particulate matter from the water by passage of the water through the filtering unit so as to produce substantially cleaner water characterized in that at least the first sub-assembly and/or the pumping unit is or are removable from or demountable from the purification unit so as to be capable of operation independently of operation of the purification unit.
2. A transportable water purification unit comprising a first sub-assembly which is essentially a pump capable of pumping water through the purification unit at a first flow rate, a second sub-assembly which is essentially a sterilizing unit capable of introducing a dosage rate or amount of a sterilizing agent to the water being treated by the water purification unit at a second flow rate, and a filtering system for filtering contaminants from the water being treated by passage through the purification unit characterized in that the purification unit further comprises a control means for controlling and/or regulating the first flow rate to a value within a predetermined range of flow rates in which said predetermined range is independent of the extent of blockage or clogging of the filter system reducing the flow rate of water through the purification unit so that the second flow rate or dosage rate of the sterilizing agent is maintained within a preselected amount in

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5 accordance with the regulated or controlled flow rate of water in the predetermined range thereby substantially reducing or eliminating fluctuations in the amount of sterilizing agent added to the water being treated by the purification unit.

- 10 3. A method of operating a transportable water purification unit characterized in that a first sub-assembly which is essentially a pumping unit capable of pumping water through the purification unit is operated to produce a first flow rate of water through the purification unit at a first flow rate, in that a second sub-assembly which is essentially a sterilizing unit capable of
- 15 introducing a dosage rate or amount of sterilizing agent to the water being treated by the water purification unit is operated at a second flow rate, in that the first flow rate is regulated or controlled to a predetermined value by a control
- 20 means for controlling the first flow rate irrespective of the state of a filter system wherein the control means is operated to produce or regulate the first flow rate and the second flow rate is determined in accordance with the first
- 25 flow rate thereby substantially reducing or eliminating fluctuations in the dosage rate of the sterilizing agent in the water being treated by the purification unit.
- 30 4. A water purification unit or method according to any preceding claim in which the control means is a valve.
- 35 5. A water purification unit or method according to any preceding claim in which the valve is a self sustaining pressure valve or self regulating pressure valve for maintaining the first flow rate

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at a predetermined value substantially irrespective of the flow rate of water passing through the filtering system.

- 5 6. A water purification unit or method according to
any preceding claim characterized in that the
pressure sustaining valve is set to provide a first
flow rate in the range from about a quarter to
three quarters of the maximum throughput of water
10 through the pump and/or purification unit.
- 15 7. A water purification unit or method according to
any preceding claim characterized in that the first
flow rate is generally about half the maximum flow
rate of the water passing through the purification
unit.
- 20 8. A water purification unit or method according to
any preceding claim characterized in that the
control means controls the first flow rate to about
600 to 800 gallons per hour.
- 25 9. A water purification unit or method according to
any preceding claim characterized in that the
maximum of the first flow rate is a flow rate of
about 1500 gallons per hour.
- 30 10. A water purification unit or method according to
any preceding claim characterized in that the
filtering system removes solid particles to less
than about 1 micron in size.
- 35 11. A water purification unit or method according to
any preceding claim in which the filtering system
of the purification unit removes Giardia and
Cryptosporidium from the water being treated to

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values down to levels greater than 3 log or to less than 1000th of the value before treatment.

- 5 12. A water purification unit or method according to any preceding claim characterized in that the filtering unit is a diatomaceous earth filter unit.
- 10 13. A water purification unit or method according to any preceding claim characterized in that the sub-assembly comprising the pump is provided with a dedicated support structure for supporting the sub-assembly when removed from the water purification unit.
- 15 14. A water purification unit or method according to any preceding claim characterized in that the support is a skid plate or one or more skids upon which the pump sub-assembly is supported.
- 20 15. A water purification unit or method according to any preceding claim characterized in that filter material, preferable diatomaceous earth is added to the filtering system whilst operating the water purification unit to treat water.
- 25 16. A water purification unit or method according to any preceding claim characterized in that a sterilizing agent is chlorine or a chlorine containing material.
- 30 17. A water purification unit or method according to any preceding claim in which the chlorine sterilizing agent is chlorine powder or granulated calcium hypochloride or sodium hypochloride,
- 35 preferably aqueous solution of sodium hypochloride.

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18. A water purification unit or method according to any preceding claim characterized in that in which the regulator is located downstream of the sterilizing unit.
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19. A water purification unit or method according to any preceding claim characterized in that the first flow is operated at a pressure of from about 100kpa to about 400kpa, preferably a range from about 150kpa to 300kpa, more preferably at a range of about 200 to 260kpa, more preferably at a range of from about 220 - 260kpa.
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20. A water purification unit or method according to any preceding claim characterized in that there is a single pump for providing the first flow and the second flow, and the second flow is produced by the first flow.
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21. a water purification unit according to any preceding claim characterized in that the first and second flow rates are independent of each other or are interrelated to each other or the valve of one is based on the valve of the other.
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22. A transportable water purification unit substantially as herein described with reference to the accompanying drawings.
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23. A method of operating a transportable water purification unit substantially as herein described with reference to the accompanying drawings.
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24. A water purification unit or method according to any preceding claim substantially as herein described with reference to the accompanying drawings.
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